

The Watershed News

Volume XVIII, Issue IV

Autumn 2015

A Quarterly Publication for the Ossipee Watershed Published by the Green Mountain Conservation Group

Ossipee Watershed Management Plan- Taking Action Today for a Better Tomorrow

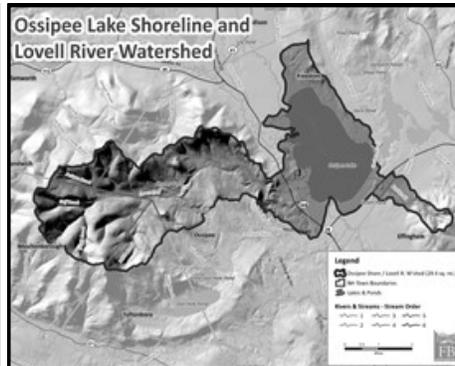
By Corey Lane

Thanks to countless volunteer hours, donations of services such as boat trips for data collection, the Ossipee Watershed Management Plan Phase I (Danforth Ponds and the Lower Bays) is now available at gmcg.org. In working with volunteers, FB Environmental and New Hampshire Department of Environmental Services (NHDES), GMCG's main goal is to create a Watershed Management Plan (WMP) that is easy for all to understand. Highlights of the plan include recommendations that the community works together to improve the water quality in the Watershed.

This WMP provides residents and decision makers the tools that are needed to protect the high quality surface water. The quality of the water in Ossipee Lake and the Lower Bays has been increasing in total phosphorus and decreasing in clarity over the years. This plan focuses on total phosphorus as the driver of overall lake health and the likely cause of the dissolved oxygen impairments. Properly managing the water bodies of the Ossipee Lake system now is necessary to turn the declining trend around before it becomes too difficult to correct.

Unfortunately, Leavitt and Broad Bays are both already on the 2012 303 (d) list of New Hampshire's impaired waters for aquatic life based on observed low dissolved oxygen and nonnative invasive aquatic plants. The outlet stream from Danforth to Broad Bay is listed as impaired for aquatic life and because of the low pH. Another troubling fact is that low levels of dissolved oxygen (anoxia) at depths of greater than 20 feet have been consistently observed in Danforth Pond.

Also of concern is the unknown of climate change. There has already been a steady increase of more frequent heavy



Ossipee WMP Phase II study area

rain events which carries non-point source pollution (stormwater runoff) into surface waters. Research has shown that Danforth Pond receives about 88% and the Lower Bays 96% of phosphorus through stormwater runoff alone. Best management practices can improve these numbers which is why GMCG has partnered with the Soak Up the Rain Program. There are many ways you can improve water quality by implementing erosion controls and mitigating sediment loading before it reaches the water.

Another unknown is how fast development in the Ossipee Watershed will occur. Through the Freedom Build Out Analysis, funded by the Town of Freedom, research showed that the town could almost double the number of structures if fully built out with current standards. Proper planning with Low Impact Development (LID) for future development along with erosion control projects can protect the Lake and Bays.

Taking action now! The WMP has laid out an action plan addressing five major categories for the communities in the Ossipee Watershed. These categories include: taking inventory of septic systems and educating residents about maintenance; implementing residential BMPS to stop polluted

runoff from washing into the lakes; maintaining roads including installing proper culverts and limiting use of sand/salt applications in the winter; continuing with long term water quality monitoring which is essential to understanding the health of the lake.

Phase II update-The steering committee met on July 28th to discuss strategies for gathering the data needed for Ossipee Lake and on September 1st, volunteers assessed the shoreline for impacts via a shoreline survey. GMCG will also be conducting a septic survey to gain a better understanding of potential impacts around Ossipee Lake and Lovell River Watershed.



Ossipee Lake shoreline survey volunteers September 1st

Please visit gmcg.org to learn more and contact GMCG if you would like to volunteer to assist with one or more of our many research, education, outreach and/or land trust programs.

Funded, in part, by A Watershed Assistance Grant from the NH Department of Environmental Services with Clean Water Act Section 319 funds from the U.S. EPA, New Hampshire Charitable Foundation, Little Royal Family Foundation, and Adeland and Valeda Lea Roy Foundation.

The Watershed News

The Watershed News is a quarterly publication of the Green Mountain Conservation Group, a non-profit, 501(c)3, charitable organization established in 1997 and dedicated to the preservation of the natural resources in the Ossipee Watershed. The towns of Eaton, Effingham, Freedom, Madison, Ossipee, Sandwich and Tamworth make up the boundaries of the Ossipee Watershed. This watershed includes one of the largest and deepest stratified drift aquifers in New Hampshire. GMCG also partners across the Maine border into Parsonsfield and beyond. Water does not have any political boundaries.

GMCG's purpose is twofold:

1. To provide an organizational structure for a coalition of citizens and local officials interested in identifying sensitive areas within the Watershed in need of protection;
2. To offer public educational events about conservation issues and possible solutions regarding the preservation of unique natural resources.

Through research, education, advocacy and land conservation we strive to promote an awareness and appreciation of our watershed's natural resources and encourage a commitment to protect them.

Board of Directors

Jerry Knirk, Chairman
Carol Stansell, Vice Chairman
Leo Racine, Treasurer
Jay Buckley, Secretary

Town Representatives

Eaton, Peter Klose
Effingham, Susan Slack
Freedom, Alice Custard
Madison, VACANT
Ossipee, Larry Wogman
Sandwich, Bob Butcher
Tamworth, VACANT
Maine, Peter Zack

Staff

Executive Director, Blair Folts
Water Quality, Corey Lane
Education, Tyler Manville
Outreach, Noreen Downs

A Message from the Executive Director

By Blair Folts

Water, water, everywhere but not a drop to drink.....Have you been much more aware of water issues this summer given all the news about drought, forest fires, contaminated water and the global water crisis? Me too. Only for me, it became personal this summer when my own well was contaminated. Though I am still not sure why—surface water contamination, soil issues or even new wells in my neighborhood which may have contributed to water quality changes—I was not able to drink my water or wash veggies or even shower in it all summer.

Humbling, to say the least, but the situation also was uniting as it offered a new way for me to better understand the larger global water scarcity issue. Did you know that women and children spend 140 million hours a day collecting water for their homes? Or did you know that globally one in nine people do not have access to safe water? Although water is a renewable resource, it is also a finite one. Only 2.53 percent of earth's water is fresh, and some two-thirds of that is locked up in glaciers and permanent snow cover.

All summer, I would take my little red wheel barrow and head to the neighboring home to pick up my 6 gallons of water for the day. A pitcher lived on my bathroom sink for teeth brushing and face washing and I had to go to the neighbors to shower each day if not swimming in the river.

Despite this, I was continually aware of how very fortunate we are where we live. Not only do we have beautiful mountains, forests and lakes to provide places for quiet reflection, but we have so much water—rivers, creeks, streams, ponds and lakes—and NH's largest stratified drift aquifer. It is important for us to remember this and

to plan for our growth with this important resource in mind—our shared drinking water.

As the summer progressed and my plans for finally seeking a new well unfolded, I thought about the mystery of our groundwater. Where does it come from? How is it connected to our neighbors and beyond? What is sustainable for ground water? How can we really know what kind of water is down 3-4 –800 feet?

I also contemplated the mystery of “fracking.” In the old days a simple piece of dynamite would be thrown into a well and then one would “hope for the best.” Today there are different measures for fracking a bedrock well but still there is little known about if this does or does not impact surrounding ground water or other people's wells. What is sustainable to maintain healthy community water sources?

As we are connected by our shared water resources, we also are impacted by our shared Best Management Practices on our sanitation. If you have been following GMCG's work on Ossipee Lake with the Watershed Management Plan, you know that we are committed to work with residents, businesses and homeowners on how to help clean up our water quality. How might old septic systems be impacting water quality on lakes, streams or the aquifer? Are there practices we can help implement to better protect water quality from sediment loading from run off?

According to the 2014 World Health and UNICEF report, more people across the planet have a mobile phone than a toilet. How is their waste disposal impacting their drinking water? The next time you turn on your tap, take a moment to be both grateful and awed by New England's bounty of clean drinking water. I'll toast to that!

Circle of life

By
Paul Bartoswicz

A single drop
of God given rain
Miniscule in the
scheme of things
Joins another
on the parched ground
Yet another,
and another
As they soak in
to the thirsty earth
They flow,
bringing life
to a barren land
reaching a pool
subterranean dwelling
Then pressure pushes up
through faults and fissures
until it bubbles forth
again on the surface
In a small muddy pool
Hardly noticeable
collecting back on the earth
and trickles forth
through the shaded wood

seeking to flow
downward ever downward
over rocks and stones
wearing down the soil
Joining other little rivulets
seeking to flow
becoming slightly bigger
Yet bigger as others join
The tiny drop
now grows larger
and flows
a little faster
The volume increases
as other drops join the flow
Wider, ever wider
The little brook grows
Joining others
and a stream becomes
The stream growing
and flowing over rocks
and stones
Streams merging
until a river forms
Growing deeper
ever deeper
A mighty river
Cities on its banks
Bringing life

Moist wet life
Flowing ever onward
toward the coast
Where it empties into
The mighty sea
with waves crashing
on the shore.
Water as far
as one can see
with sky above
and through the heat
raises little drops
from the mighty sea
And now in clouds
it does reside
Until one day
it falls
A single little
drop of rain
Upon the parched soil
below
where it joins another
in the circle of life.

*Paul H. Bartoswicz is a poet and
the Effingham Post Master*

Water Quality Research Update

By Corey Lane

Sadly, summer has ended, but GMCG's dedicated volunteers continue on with water quality data collection around the Watershed. The monitoring of 30 RIVERS tributary sites will continue every other week though mid October with the continued help of 35 dedicated volunteers who have made over 500 site visits since May. Not to be forgotten is the help of local businesses around the watershed who offer drop off and pick up locations for the volunteers to exchange the equipment so testing can be completed before 9:00am. From November through April, 11 sites will continue to be monitored once a month throughout the winter and once again we are grateful for Dave Downs and Rich Dandeneau who continue to take it on without a complaint. GMCG thanks UNH's Water Resource Research Center for support with analysis of grab samples for the RIVERS program as well.

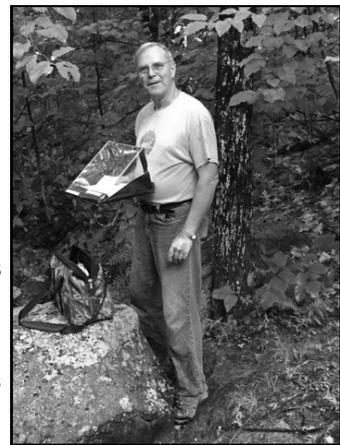
VLAP (Volunteer Lake Assessment Program) was also a great success this season. Volunteers made six trips once monthly out on the Lake and Bays for deep water testing from ice out through fall turnover. Not only do we need volunteers to collect samples and data in a timely manor, but each trip also requires three volunteers with three different boats in relay race fashion allowing enough time to get samples to DES in Concord for analysis.

In partnership with Plymouth State University (PSU), GMCG is grateful that Dr. Lisa Doner is currently focusing her research on

Danforth Pond due to the anoxic conditions it has been experiencing. Her extensive research has been aided with help from Freedom Conservation Commission's Jim McElroy, volunteers and students. Also through PSU, data loggers are still "living" in the Pine and Ossipee Rivers year round for long term monitoring of stage, temperature and conductivity. This NH climate study is in its third year of collecting readings every fifteen minutes.

Dr. Robert Newton from Smith College is also continuing water resource research across the Watershed in partnership with his students.

GMCG is grateful for the volunteers who are the backbone of these programs. Without this support, the programs would not exist. Email clane@gmccg.org or call 539-1859 if you would like to join the fun!



Ralph Lutjen collecting data at Banfield Brook in Madison

The Life of Herons

By Corey Lane

In celebration of GMCG' future office, The Heron House, and in honor of the great blue heron that has been gracing this new property on the Ossipee River, an article about this majestic bird that can be spotted year round in New Hampshire seems proper.

You can find these statuesque birds standing motionless or slowly wading in the water, belly deep, while hunting for mostly fish, but also amphibians, invertebrates, reptiles, mammals, and birds along shorelines, river banks, edges of marshes, estuaries and ponds across most of the U. S. Herons are also known to feed in meadows and farmlands as well. Once their prey is spotted, they strike lightning fast with the help of their S shaped neck. Herons have specialized feathers on their chest which continually grow and fray. They comb this "powder down" with the fringed claws on their middle toes which acts like a washcloth helping remove their dinner from their feathers. Herons are usually solitary hunters and can become quite dramatic about defending their territory not only from other herons but also other species including humans.

Males and females can be difficult to differentiate with no distinguishable markings. Both sexes can grow to an impressive three to four and a half feet tall but only average between five and six pounds because, like all other birds, they have hollow bones. The wingspan of herons can stretch between five and a half to six and a half feet and you may likely hear the slow beat of their wings before spotting them flying overhead.

Hérons can nest in colonies of up to 500 nests, sometimes multiple nests per tree up to 100 feet off the ground. They are monogamous for one season but choose a new partner the next season. Once a pair, the male will bring the female nest materials from the ground, trees, shrubs and other abandoned or unattended nests. The nest size may range from about 20 inches up to four feet wide and 3 and a half feet deep if reusing a nest from previous years. Females lay one to two broods of two to six eggs a season which incubate in 27 to 29 days with both parents sitting on the nest. Once hatched, the chicks remain in the nest for between 49 and 81 days before fledging.

Adult herons have few predators but the biggest threats to their safety include the bald eagle and great horned owl. The oldest recorded heron through

banding recovery was 24 years old but through a study in British Columbia, the average age of a breeding adult is 5.6 years old.

Most populations of great blue herons are currently stable and have been on the rise since 1966 according to the North American Breeding Bird Survey. However, some areas in the U.S. are experiencing a decline in populations. Because they depend on wetlands, river and lakes for feeding as well as undisturbed areas for nesting sites, they are vulnerable to human activities including development, logging, traffic and motorboats. In the northeastern U.S. and southern Canada, many species, including herons, have benefited from the recovery of beaver populations, which have created a patchwork of swamps and meadows well-suited to foraging and nesting. Other threats to herons include water quality impairments that affect the heron's ability to thrive. Chemical pollutants such as DDT, PCBs and newer types of industrial chemicals that work their way into our waterbodies not only impact the herons but the entire ecosystem around us.

With the great blue heron being so dependent on clean water for survival, GMCG is very fortunate to be able to observe this amazing creature from the river bank of the new property, The Heron House, that GMCG will soon call home.

Source: Cornell Lab of Ornithology at http://www.allaboutbirds.org/guide/Great_Blue_Heron/lifehistory



The Heron House heron fishing in the Ossipee River.

Youth Water Literacy Programs for the 2015/2016 School Year

By Tyler Manville

Green Mountain Conservation Group is an organization which vigorously pursues its mission of “Healthy Water, Healthy Communities” in a variety of different ways. Through research, education, advocacy, and land conservation, GMCG works to protect valuable water resources as well as enhance the environmental stewardship of the communities. One valuable way that GMCG aims to reach our mission is through Youth Water Literacy Programs that engage the local youth and their families. Reaching students at elementary and middle school levels in particular may help to create future generations of watershed stewards and community leaders in the Ossipee Watershed.

The Volunteer Biological Assessment Program (VBAP) has officially begun for the 2015/2016 school year. In GMCG’s 10th year of this program, nine schools are involved sampling 10 different river sites. School groups that are involved in the program this year include Sandwich Central School, Ossipee Central School, Freedom Elementary School, Madison Elementary School, Effingham Elementary School, Ossipee 4-H Voyagers, Moultonborough Central School, The Community School in Tamworth, and the Maine Environmental Science Academy. We are very excited to be able to reach such a wide variety of area youth through the Water Literacy Programs!



Freedom student scientists at Cold Brook in Freedom.

Throughout the fall, students will analyze their VBAP data and work across five school districts to finally co-present at a Community Presentation on December 3.

In addition to VBAP program, Trout in the Classroom and the GET-WET program further enhance student’s understanding of the importance of water resources. Through Trout in the Classroom, students raise trout from eggs to fry in their school and then release the trout into

local rivers and streams in the spring. This allows students to learn about the life cycle of trout and the important role they play in the ecosystem of a Northern stream. The GET-WET program is a program in which students collect well water from their home and test it for a number of different chemical parameters in the classroom. This provides students with knowledge of how an aquifer functions and the importance of our shared water resources.

These programs are all very valuable parts of GMCG’s Water Literacy Program and their interconnectedness is something that resonates well with the students involved. In addition to running these Water Literacy Programs this upcoming school year, GMCG will also be working to incorporate these programs into a Water Literacy Curriculum for use in local watershed schools aimed for completion in 2016. This curriculum will incorporate basic water knowledge as well as a local aspect about the Ossipee watershed and aquifer and its importance to our area and our communities. A Steering Committee will be set up to get input from teachers and community members. Although the curriculum will be intended for use throughout the entire watershed, GMCG plans to host meetings in each town as well as host a final watershed wide meeting in the spring.

The goal of this curriculum, which will follow NH state education standards, is to help instill a sense of appreciation and a sense of conservation of our water resources in students at a young age. A particularly unique aspect of this curriculum is that it will bring together teachers and community members from all of the Ossipee Watershed’s towns to create a quality finished product.

If you would like to volunteer with Water Literacy Programs or would like to join the Water Literacy Curriculum Steering Committee, please contact Tyler at education@gmccg.org or at 603-539-1859.

Funded in part by the Dorr Foundation.



Students from Sandwich Central School do the “bug dance” to collect macroinvertebrates.

Conservation Conversations

Editor's Note: *Conversations is intended to provide a forum for the seven towns of the Ossipee Watershed to share news of their conservation and planning activities and an opportunity to find creative solutions to challenges.*

Eaton

The Eaton Conservation Commission is working hand-in-hand with the Loon Preservation Committee to put in one or more "modern" floating loon nesting islands onto Crystal Lake next year. The new style of nesting islands have wire mesh below the nesting material to keep muskrats out and a partial bowed cover to provide protection from hawks and eagles. The islands will be anchored offshore, along with signs



Crystal Lake looking towards Eaton Center

Effingham

Mike's paddle dipped rhythmically as his kayak slid through the placid waters of Berry Bay. Drops of water plinked onto the surface of the lake, while the swirls of each paddle stroke faded out in the wake of the boat.

A sudden darkness seemed to dim the sun as the hairs lifted on his neck. What was that beneath the boat?

Milfoil. Beneath carefree paddlers and children on float tubes, fronds snaked upward toward the sun. One. Two. A dozen. Deeper in the murk, more was silently spreading. This had to be stopped. Mike dug in harder with the paddle. As he raced for shore, the sinister weed grew taller.

At Milfoil Emergency Headquarters, a team was assembled. Despite the danger of touching something slimy, they went onto the infected cove to map the area. As the magnitude of it dawned on them, someone might even have said, "We're gonna need a bigger boat."

Effingham is now the proud owner of a patch of milfoil estimated by New England Milfoil's Cliff Cabral to be one acre of milfoil in 3-5 water acres of this cove. Because of the time involved to get permits for chemical treatment, hand harvesting

will be done instead.

The milfoil is in a cove out of the main flow of river current, at the south end of the bay. It will now be monitored and treated on a regular schedule.

Aside from the aquatic excitement, ECC has pursued a quiet schedule of maintenance on conservation properties in the town and designed some signage to be placed on those lots that have road frontage. Plans are also under consideration for a short trail on lots by Province Lake. for local boaters to keep their distance. It's a tough life out there when living under Mother Nature's rules!!



Province Lake and Green Mountain

Notes from Down Stream

By Dennis Finn

The Saco River Corridor Commission is expanding our water quality monitoring program starting next spring with the addition of around the clock, fixed temperature monitoring at 5 separate sites in tributaries of the Saco, Ossipee and Little Ossipee Rivers. GMCG has already invested in these types of permanent temperature gauges and while we are behind our partners in New Hampshire, we are eager to catch up and join a new way of looking at changes in our collective watershed.

The project, sponsored through the Gulf of Maine Project and supported in part by the US Fish and Wildlife Service, hopes to document temperature changes throughout Maine and New England with volunteers stepping in to purchase, install and tap into the data periodically. The temperature sensors record data every 30 seconds and are very rugged, designed to withstand the rigors of high, fast water and winter temperatures. Typically, monitoring stations of this type are anchored at depth using metal fasteners or cables. What makes these

temperature sensors different is that they are attached by using a special waterproof adhesive that is attached firmly to the sensor and then affixed to a submerged rock or bridge abutment.

We are pleased to join the network of environmental families that are looking at watershed "symptoms" from natural and manmade influences that once understood, may ultimately push environmental policy at the state and federal level into one of awareness and fact based decision making.

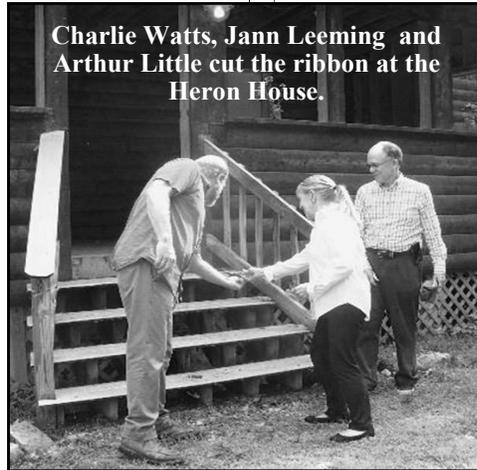
For more information or to learn how you can help volunteer, please call [\(603\) 915-0651](tel:6039150651). To register as a volunteer you may also email info@sacosalmon.com Hope to see you!

Dennis Finn is the Executive Director of the Saco River Corridor Commission and may be reached at 207-625-8123.

Thanks to everyone who helped make Summer Fundraising events a success!

GMCG would like to extend a huge thank you to everyone who helped make the summer fundraising events a success. Both the **Heron House Celebration** and the **August Auction** brought in well needed funds and a host of new supporters. Thanks to everyone who helped organize the events and all who came out to show their support.

The **Heron House Celebration** in July kicked off the fundraising campaign for the new Conservation Center on the Ossipee River. Over 75 folks attended the afternoon event and had a chance to meet lead donors Arthur Little and Jann Leeming and Charlie Watts who represented his family on behalf of his mother Patricia Watts. Following a short presentation about the project attendees were treated to a walk with Dr. Rick Van de Poll who spoke about the important conservation values and pointed out wetland highlights on the property. The walk culminated on the River where visitors were graced by a visit from the resident heron just before Arthur, Jann and Charlie cut the ribbon on the property. GMCG has raised \$36,000 of the \$100,000 goal needed for the project. For more information or to make a pledge on line please visit gmcg.org.



Charlie Watts, Jann Leeming and Arthur Little cut the ribbon at the Heron House.

In August, the board of directors and staff, hosted an **auction**, dinner and presentation to raise money for the water quality programs. Tom and Rob Troon, Auctioneers led a lively auction that included faraway adventures as well as donated local activities and events. The well attended event raised over \$10,000 in support of water quality research and for community and school educational programs.

Our sincere thanks go to business sponsors G. W. Brooks and Son Construction of Freedom and to Beam Construction Associates of Sandwich. GMCG extends warm gratitude to the local businesses for their wonderful donations to the event's door prizes and many auction

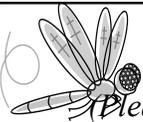
items.

Special recognition goes to our great volunteers. The success of these events relies on our dedicated volunteer commitments. We try our best to also make them "fun". If you would like to volunteer for future events, please call the office at 539-1859.

Save the Date! 2015 Autumn Calendar

Thursday October 29, 6:30-8 pm BAT CHAT—What's Up With Bats in New Hampshire? Effingham Public Library with Speaking For Wildlife volunteer, Kamal Nath. Learn about the only mammal that flies in the night sky. They are the major vacuum cleaner of agriculturally harmful insects; also mosquitoes- yes, lots and lots of mosquitoes. Learn about the eight species of bats that fill the New Hampshire night sky, why they are endangered and how you may be able to help!

Thursday December 3 6-8 pm Youth Water Quality presentation, location to be determined. Students from ten schools around the watershed will present information on water quality results from tributary and macroinvertebrates data collection over the fall. FMI call GMCG 539-1859.



**Your Membership Makes a Difference.
Every drop counts! Thank you!**

Please make checks payable to Green Mountain Conservation Group Box 95, Effingham, NH 03882)
You may also renew your membership online at www.gmcg.org/we-need-your-help/

Vernal Pool __\$25 Stream __\$50 River __\$75 Pond __\$100 Bay __\$250 Lake __\$500 Aquifer __\$1000 Other __

NAME _____

ADDRESS _____

PHONE _____ EMAIL _____

Are you interested in being a GMCG Volunteer? YES

If you missed March Membership Renewal Month, PLEASE RENEW YOUR MEMBERSHIP TODAY and encourage your family, friends and neighbors to join GMCG. GMCG is a non-profit 501 (C)3 tax-exempt organization funded by grants, memberships, and donations. THANK YOU FOR YOUR CONTINUED SUPPORT!





P.O. Box 95
196 Huntress Bridge Road
Effingham, NH 03882
(603) 539-1859
www.gmcg.org
info@gmcg.org

Nonprofit
Organization
U.S. Postage Paid
Effingham, NH
Permit No. 10

The Watershed News

Save the Date!

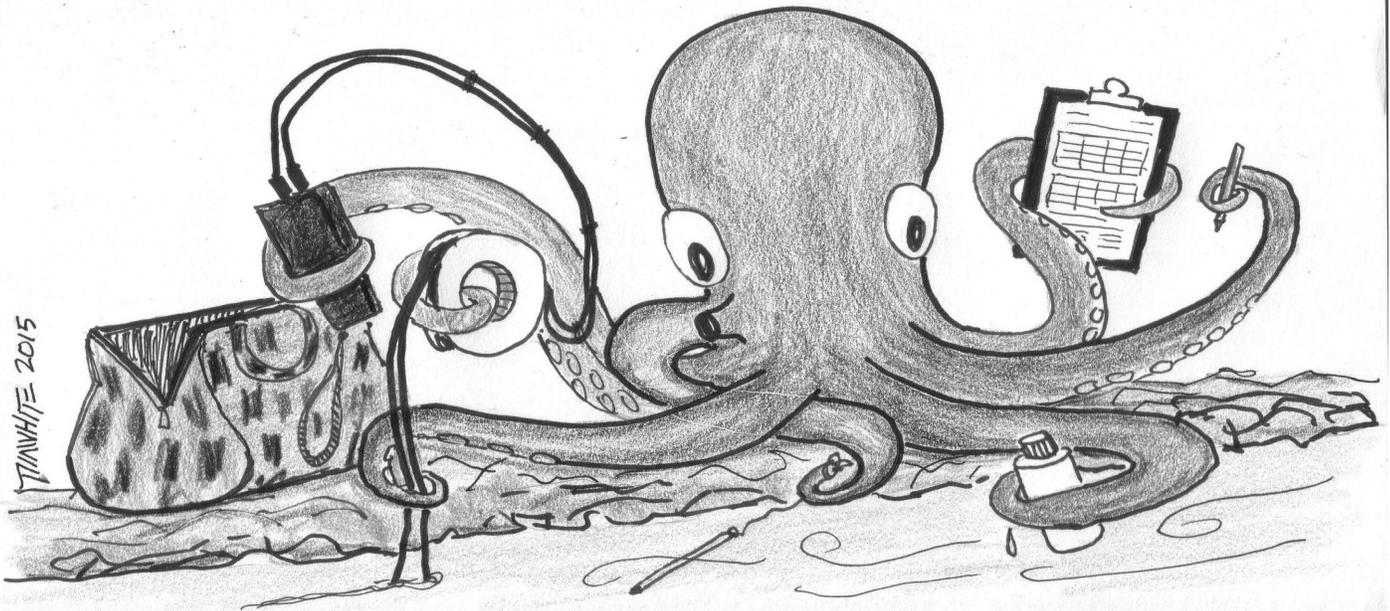
**Watershed Youth
Water Quality
Presentation**

December 3.

**Winter Newsletter
submissions due December 10**

EVERY PERSON CAN MAKE A DIFFERENCE AND EACH PERSON SHOULD TRY.

THIS NEW VOLUNTEER WORKS UNBELIEVABLY QUICKLY.
I HEARD SHE'S FROM THE SEACOAST AREA.



Sign up for event updates with *Watershed Happenings* and stay in the flow! Sign-up at www.gmcg.org